



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,762	06/27/2006	Wen Gao	15098.0006USWO	5783
23552	7590	08/23/2010		
23552	7590	08/23/2010	EXAMINER	
23552	7590	08/23/2010	TORRENTE, RICHARD T	
23552	7590	08/23/2010	ART UNIT	PAPER NUMBER
23552	7590	08/23/2010	2621	
23552	7590	08/23/2010		MAIL DATE
23552	7590	08/23/2010		DELIVERY MODE
23552	7590	08/23/2010		PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/584,762	Applicant(s) GAO ET AL.
	Examiner RICHARD TORRENTE	Art Unit 2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 24 May 2007.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-3 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-3 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 27 June 2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because implied phrase "discloses" and "comprising" is used. Correction is required. See MPEP § 608.01(b).
3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Method for obtaining motion vector and image reference block in a code mode of fixed reference frame number.

Drawings

4. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct

any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim(s) 1-3 is/are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent¹ and recent Federal Circuit decisions² indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example, the "performing motion estimation", "discriminating whether the motion", etc. method are of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine. The applicant has provided no explicit and deliberate definitions of "performing

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

motion estimation", "discriminating whether the motion", etc. to limit the steps to the electronic form of the "method for obtaining an image".

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim(s) 1-3 is/are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim(s) 1, the phrase "possibly" in section (b) and (f) renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

9. Claim(s) 3, the phrase "possibly" in section (b) and (f) renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadono et al. (US 7,327,788).

Regarding claim 1, Kadono discloses a method for obtaining an image reference block (see Mb1 in fig. 1) in a code mode (see direct mode of fig. 1) of fixed reference frame number (see abstract; e.g. see fig. 1), comprising the steps of: (a) performing motion estimation (see fig. 3) for each block of a current B frame (see 1202 in fig. 1) and obtaining a motion vector MV (see MVb in fig. 1) of a corresponding block of a backward reference frame (see 1203 in fig. 1); (b) discriminating whether the motion vector is beyond a maximum forward reference frame (see fig. 4; see column 3, lines 50-60) which is possibly pointed by the B frame (see 1202 in fig. 1), if not, proceeding to step (c); else, proceeding to step (d); (c) a forward motion vector (see MVf in fig. 7) and a backward motion vector (see MVb in fig. 7) of a macro block (see 1502 in fig. 7) being able to be calculated by the following formulas (e.g. see eq. 1(a) in column 2. Note that tb-td is equivalent to TRb): assuming

$$MV_F = \frac{tb}{td} \times MV$$

$$MV_B = \frac{tb - td}{td} \times MV$$

here, tb is a distance in time domain (see TRf in fig. 7) between a current picture and a forward reference picture, and td is a distance in time domain (see TR1 in fig. 7) between a forward reference picture and a backward reference picture ; (d) a forward motion vector (see MVf in fig. 10) and a backward motion vector (see MVb in fig. 10) of the macro block being able to be calculated by the following formulas (e.g. see eq. 2 in column 9. Note that tb-td is equivalent to TRb): assuming MV_F and MV_B as a forward motion vector and a backward motion vector of a current block,


$$MV_F = \frac{tb'}{td} \times MV$$
$$MV_B = \frac{tb - td}{td} \times MV$$

here, tb is a distance in time domain (see distance from 1700 and 1702 in fig. 10, wherein it is implied that tb-td is the derivation of "TR1- distance of (1700 and 1702)" in obtaining TRb) between a current picture and a forward reference picture, td is a distance in time domain (see TR1 in fig. 10) between a forward reference picture and a backward reference picture, and tb' is a distance in time domain (see TRf in fig. 10) between the current B frame and the forward reference frame which is possibly pointed by the B frame; (e) two image blocks pointed by the MV_B and MV_F being image reference blocks corresponding to the macro block (see MVf and MVb in fig. 10).

Regarding claim 2, Kadono further discloses wherein said obtaining a motion vector MV of a corresponding block of a backward reference frame in said step (a) includes: selecting a macro block with the same position as a macro block to be

encoded in B frame to be a corresponding macro block from a backward reference P frame, and obtaining a motion vector of the macro block in P frame (see fig. 1).

Regarding claim 3, Kadono further discloses wherein said discriminating whether the motion vector of the corresponding block in the backward reference frame is beyond a maximum forward reference frame which is possibly pointed by the B frame in step (b) includes: comparing whether a time domain obtaining the maximum forward reference frame which is possibly pointed by the B frame is larger than or equals to a time domain of a forward reference frame pointed by the motion vector of the corresponding block in the backward reference frame, if yes, then not beyond the maximum forward reference frame which is possibly pointed by the B frame; else, beyond it (see fig. 4; e.g. see fig. 7 and 10).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD TORRENTE whose telephone number is (571) 270-3702. The examiner can normally be reached on M-F: 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Young Lee/
Primary Examiner, Art Unit 2621

/Richard Torrente/
Examiner, Art Unit 2621